THE

BOSTON MEDICAL AND SURGICAL

JOURNAL.

VOL. XVII.] WEDNESDAY, NOVEMBER 29, 1837. [NO. 17.

FUNCTIONS OF THE BRAIN.

PROFESSOR EVANSON being called upon, at the late meeting of the British Association in Liverpool, for his paper on "A critical analysis of the different methods adopted for determining the functions of the brain," said he meant to confine himself very strictly to what the title of his paper announced. He felt the necessity of being as brief as possible at that late period of the section. The subject he had undertaken was one of considerable extent, and he should endeavor to curtail that extent by confining himself to particulars. He should avail himself of extemporary speaking, in order to increased facility and rapidity in communicating his views. He need say nothing upon the difficulty of the subject; its mere announcement would speak for that—to pass in critical review each of the methods which had been at different times adopted by physiologists in endeavoring to solve the problem, "What is the use of the brain?" and to compare each of these methods, as he proposed to do, according to two standards—first its applicability to the object proposed, and next the final test of whether it was partially or equally successful; so that he need not say that he had a task of some difficulty and importance, and that the subject required to be a little dilated upon. The brain was a very large and a very important organ of the body. The question was, did they really at this time of day know its functions? He believed, at least, that it would be agreed upon that they did not agree on its functions. He could hardly have brought forward a more important proposition for the consideration of the section than an analysis of the functions of this organ and the methods by which it had been attempted to ascertain its functions. The particular object, then, that he wished to bring before the section, was the analysis of a few of these methods; and he need not say anything to impress on all present the importance of the inquiry in order that they should get into the right road. For Lord Bacon had said that a cripple in the right road would beat a racer in the wrong. (Hear.) The proposition was, "What are the uses of the brain?" There was this important viscus in the body—what were its uses, or was it of no use whatever? This question had naturally attracted the attention of the most distinguished physiologists. One of the first methods was to anatomise the brain. They said, "We will dissect it, and find out its uses thereby." But this was soon found to be ineffectual. Mere anatomy would not reveal its use, or that of any organ. The mere examination of a structure will not show the functions of which that structure is capable. (Hear.) If they wanted any proof of this they might instance the brain. It was dissected and demonstrated every day, and many hard names which served to puzzle the student were learned, but all this showed little light as to its functions. The mere anatomy of the brain was insufficient. "Oh but," said some pysiologists, "we have found out a method by which the question can be determined; we will not rest satisfied by dissecting it in the dead subject, but we will dissect it in the living." This was one step in the advance of inquiry. They certainly, when they proposed to cut up a section of the brain and compare its results with others, had made an advance; they came to an attempt to ascertain how far the exercise of function was connected with the integrity of particular parts. But they came now to inquire, was this measure adequate to the object proposed, and had it been attended with success? That method was unable to solve the proposition it pretended to. To cut out the parts of the brain and then determine its functions, implied that they knew what part to cut out. It implied also that they knew how to take neither more nor less than the function, lest they should commit an injury on surrounding parts. They were as badly off as Shylock, when he had to take a pound of flesh, but to take neither more nor less. Had it been satisfactory? Certainly not. The same investigators had differed from themselves at different times as to the results. The principal result had been a conviction that certain emotions appertain to certain parts of the brain; it appearing to be ascertained on investigation that an abstraction of particular parts of the brain—of the cerebellum, was attended with disturbance of peculiar emotions. Injury to the crura cerebelli was said to be attended with certain rotatory motions. It appeared strange enough, that making wounds in the ears of birds was attended with disturbed rotatory motions. It was therefore as legitimate a conclusion, that a particular part of the brain had the function of motion, as that the canal of the ears of birds had a similar function. This was an argumentum absurdum sufficient, without going any farther. But so far as this had gone in the hands of another investigator, Boileau, he seemed to have established this fact, that the removal of the anterior lobes of the brain was always followed by a loss of perception. This seemed to be so universal as to give a general assent. And so far as this rude examination went, this method had proved the use of the anterior lobes. There were some facts stated with respect to injury of the human brain, which were very puzzling, but they were puzzling to all classes of philosophers. It would appear from some of them that man was different from animals; that he could afford to lose a part of his brain and not miss it—that brain was of more necessity to a rabbit than to a man. (A laugh.) This might be a consolation. Another class of inquirers then came forward and said, "we have now the best method; we will not depend on merely dissecting the brain in the dead, nor in cutting it up in living subjects; we see the disadvantage in that, as the investigation could never be applied to man." "We," said the pathologists, "will wait till nature, or rather disease, does for us what the dissecting anatomist does for himself; we will wait till particular parts of the brain are affected; we will see the cause of disturbance, and infer therefrom." No one could feel more than he did the great assistance that had been derived from pathological observations of the brain; but he was not one of those who thought pathology was a sort of Alexandrian sword, with which they were to cut every gordian knot. He would read to them some of the results which had followed these observations. Looking at the effect of diseases of the brain, they would find that investigation had proceeded a very small way indeed. So far as these investigations had gone, it had been agreed on by investigators that the loss of the power of utterance seemed to depend on the loss of the anterior lobes of the cerebrum. Little light has been thrown on the subject. He would suggest to different investigators, that they qualify themselves to do more than they had done. (Hear.) A great number of pathological cases were brought forward to prove by individual cases the power of connecting signs with sense, when disease existed in that part of the brain which was demonstrated the organ of language. He would take the liberty to inculcate on the junior part of his audience, the necessity of their making inquiry for themselves. A gentleman became possessed of a case, and he wrote an account of it, either for or against phrenology, without having a full knowledge of the subject. The pathological method for determining the functions of the brain, was really not fully sufficient, and he passed from it. A wholly different investigation was now taken up. It was said, "we will take the brain as it is, in its natural living state, and institute an investigation, and compare it, and make out why it was that a man was the most intelligent animal in the world." Oh, it was because he has the largest brain in the world; no animal has so large a brain." Now, there were larger brains in the world; therefore that theory was overturned. Then it was, "he has not the largest brain, but he has the largest brain compared with the size of his body." That was not the fact. The wren and the sparrow had larger brains compared to the size of their bodies. Then it was, "he has a larger brain in comparison with his spinal marrow than any animal." He had not the largest brain in comparison to his spinal marrow, so there was an end of that statement. It was remarkable that great names were attached to each of these theories, whilst the statements of others, deserving respect, had not been so well and properly treated. One said, "I will compare the brain to the face, and then I will make it out. The reason that man is the head of the creation in his intellectual powers, is, that man has the greatest brain in comparison to his face." This was not correct. Campier's facial line was next introduced. Accordingly, as the angle, showing the comparative prominence of the forehead with the jaws, used in his plan, was greater or less, the intellect was to be greater or less. This appeared quite successful at first. Now, it appeared so from an accidental circumstance. It was accidentally right, as it happened to take in the anterior part of the brain, which was the part of intellect. But when investigated it was not true in principle nor in fact; for in the young child you have a larger *anterior* brain than in man. And again, according to their method, the most intelligent negro must be more deficient than the most stupid European, the angle being altered as the jaws or face protruded. All these methods failed in being reasonable methods of inquiry; and he had shown that they failed, in being irreconcileable with matters of fact. They took the whole brain to be a single organ, which it was not; and the measure of the brain to be the measure of the intellect, which it was not. A man's brain was fixed. What mattered it whether another part of his body grew small or great; that would not alter his intellect. If they changed the shape of the bones of his face, that would not alter his intellect. Yet, according to these methods, the alteration of any one of them would alter the man's intellectual powers. These methods would seem not to be adequate in this investigation: they have been tried and found wanting. Another investigator now appeared in the field; a man possessed of the power of original thought—of the power of observing nature with the greatest accuracy—and he particularly mentioned this, because he was represented in an opposite light—as a physiologist coming out with so perfect a theory that its very perfection was an argument against it—Dr. Gall (loud applause), proceeded to investigate the brain and put his facts together; and he put down nothing but what he believed to be a fact; and to this day Dr. Gall's own system was infinitely behind hand with all others as to fact. He had given in his adhesion to the power of the organs being determined, more than any other person, showing the slowness with which he gave in his verdict to what was not fully settled. He looked on the brain as a plurality of organs; and his method was not to compare it with anything else, or any other brain, but to compare one part of it with another. This had been ridiculed; but what there was ridiculous in it, he could not discover. The result of his observations was, to come to the conclusion that, where the anterior part of the brain predominated, the intellect held sway; where the superior part predominated, the moral powers were more exalted; and where the posterior and inferior, the animal propensities. If they came to look into this rationally, what more rational than this, that the brain, the organ of the mind, and the organ of the feelings, as one part of it predominated, so in that the function predominated. If the anterior lobes preponderated and it be supposed to be the part of intellect, so would the intellectual part preponderate. They might be here met by an opinion which was very generally adopted, that the feelings and sentiments did not belong to the brain. They all knew that the sympathetic affections between the brain and other parts of the body were very remarkable; and that certain feelings or passions were accompanied with sensations in different parts of the body, from which it had been inferred that the passion lived in the place where it was felt—as, for instance, some of the finer feelings in the heart, and some of the less amiable in the liver. The same reason, if this were well founded, should make them place grief in the *lachrymal glands*, because they shed tears. Or, if the feeling of fear produced the result which a friend of his, who had been in the army, said it did —that he could generally tell from his nose where the young recruits lay in the line of battle in the morning—they should place it in the excrement. (Loud laughter.) Such an idea was an absurd one. The system that Gall had pursued in his investigations, he had endeavored to show was a rational system. He did not fall into the error of calling the brain a single organ, or comparing it with other brains with which it had nothing to do; but he compared one part of the same brain with other parts, and by observing the difference in the shapes of heads and the difference in individuals, he was able to come to a conclusion. Many objected that size was a measure of power. Phrenologists did not say that mere size was a criterion of power. If they came to compare the heads of different individuals, they would find that such was not the case. His system was equally tested by comparison with the same head, and with the same part of another. Now the only question respecting this science was, was it true, or was it not? As to the question that injurious result arose from such opinions, he thought it was not worthy of physiological investigation. It was a great oversight not to recollect that the works of nature were the works of the Creator; and that every fact ascertained in nature was really but a line written by the Lord in his own book. (Hear.) To determine, then, whether these facts be true or not, there were two orders of testimony—the testimony of others and of ourselves. The testimony of others, of scientific authors, was long against this science; but so far from that being the case now, it was extraordinary the number of scientific men that had given in to these opinions—of men who had attained a certain age, and yet received a new science. He would say, if one distinguished man, and that man before an opponent, came round to an adhesion to the theory, it overcame the opposition of one hundred other men who had not investigated it, and knew nothing about it, and would know nothing about it. He would appeal to the junior part of the audience, to think and examine for themselves. When they came to think of and examine into this science, he would venture to say, they would find in it some of the most physiological truths of any which had yet been presented to their notice. But they must go to the trouble of studying and inquiring into the subject. He should conclude, by a reference simply to the character of the opposition which had been offered to phrenology, and the character of the actual evidence in its favor. A man undertook to speak or write against phrenology; put a scull into that man's hand, and ask him to point out the phrenological characters and name them; ask an opponent to do this, and they would not find a single opponent who could point out six organs in the head. He undertook to decide that a thing was wrong, without knowing what it was that was wrong. (Hear.) When a gentleman gave him proof that he really knew the subject, he should listen to him with great deference, but not otherwise. Again, on the nature of the evidence, and he would conclude. Cases were recorded against this science of individual failure by persons of incompetent skill to decide. He contended that the affirmative evidence outweighed, one thousand times, the evidence of their opponents.

Dr. Simms considered that pathology had thrown considerable light on this subject. It had been found that the brain decreased in weight after forty or fifty years of age, when man was in his best estate.

Dr. M'Intosh said that Professor Evanson had not alluded to insanity, which was the stronghold of phrenology. Many phrenologists pretended to determine character who were not qualified to do so. He related several instances where the phrenological knowledge of Mr. Combe, of Edinburgh, had been most satisfactorily put to the test.

Mr. Milnes, a non-medical member, said, if there was any objection against phrenology more striking than another, it was the very little progress that had been made in it since the time of Dr. Gall.

Dr. M'Intosh said that was not correct.

A member, whose name we did not learn, said he had had a cast of his head taken, and had submitted it to Mr. Combe, but he had declined to give an opinion upon it. He had it afterwards submitted to two other eminent phrenologists, and they differed very considerably about it, and also from the truth, so far as he knew himself and the actions of his life.

Dr. Cull said, a good phrenologist could ascertain character from the brain as well as from the scull, and produced a cast of the brain of Greenacre, the murderer, whose character had been shown from it.

Dr. Macartney said he had been a phrenologist, and a pupil of Spurzheim, and took his education from the fountain head; but experience had led him to change his opinions. Therefore the argument that people came round to phrenology was met by people going away from it. That part of the brain most intimate in its structure was entirely overlooked by phrenologists. They could never find that out. Phrenologists overlooked entirely what was the real structure of an organ—the internal structure of the brain. They might as well examine an orange and say, from its appearance, without cutting into it, whether it was a fruit fit to eat. He had known an instance where a pitchfork had been driven into the eye of a man, and had pierced the brain, and fixed itself so firmly in the scull at the top of the head, that it was obliged to be hammered out from the opposite bone, and the man's mental functions were never disturbed at all by it, and he recovered and lived for some time.

Dr. M'Intosh.—What did he die of?

Dr. Macartney.—He died of *dysentery*, seven years afterwards. (Much laughter.) He had already seen, in the internal structure of the brain, by dissecting, a great many varieties connected with character. Professor Evanson said the brain was not an organ, but that there were a great many. How did he get over this fact, that the filaments of the brain were so intimately connected with each other, that no traces of any division could be found. He therefore could not conceive how anything could go into one organ which was not taken cognizance of by the whole brain.

Dr. Carson here, as president, abruptly put an end to the discussion, by saying the time would not afford it, in order to get through the other papers.

A vote of thanks was then given to Professor Evanson, and the discussion closed.

[As an appendix to the preceding debate, we insert the following communication, which has been handed us by our correspondent, Dr. Haskell, of South Boston, whose views we recommend to the attention of the readers of the Journal.]

FORMATION OF THE BRAIN, HEART, &c.

The investigations that have been carried on in comparative and philosophical anatomy, particularly the latter, seem to converge towards the establishment of one principle; and that is, that there is a slow but continuous evolution of structure and function, from the lowest form of organized matter to the highest; that in the polypus we have the simplest type of animal life, in man the most complex. The former is but a mass of matter endowed with mobility, expanding with an inherent force, and by the combination of its activity and the impression of external agents, continuing through successive ages, it is made to exhibit all the changes wrought among animated beings. If it be supposed that this inherent force is a dense, elastic fluid, which organizes, agitates and expands the particles of bodies through which it moves, we might naturally look for the exhibition of the properties of such a fluid in the permanent forms, as well as functions, which these bodies assume.

1. If, for instance, the phenomena of light depend on the motions of a fluid similar to it, we might expect a class of appearances to correspond with the properties of light, as radiation, color, &c.

2. If, again, electricity, galvanism, &c., are effects of the motions of this fluid, the laws which are said to govern these agents should be illustrated by all beings which have life.

3. A third class of appearances would represent the motions that take place when two elastic fluids, in motion, interfere or strike against each other—as the undulations of the sea produced by winds, vortexes, whirlpools, and whirlwinds, the common characteristic of all which, is a circular motion communicated by the impulse.

4. A fourth class of phenomena would correspond with that pressure of fluids which is exerted against the parietes of the cavities that contain them, as the pressure of air against the internal surface of a soap bubble or bladder when blown into it, which is opposed to two pressures from without, viz., the pressure of the atmosphere and the elasticity of the tissue which it is expanding.

Now phenomena, belonging to one or more of these four classes, exhibit themselves abundantly in everything that has life, and in every organ and tissue where variety of structure is cognizable to the senses.

1. Radiation is shown in *arborization;* in the divergence of the petals of flowers; in the radiated fibres of wood; in umbels, corymbs, &c.; in the net work of leaves; in their frequent arrangement in whorls; in the formation of the flat bones; in the extensive class of animals, called, from this circumstance, "Radiatæ;" in the distribution of blood-vessels, the veins representing the converging, the arteries the diverging rays, the heart the focus; in the bronchial ramifications, and those of secretory tubes, the intermingling of several of these arborizations constituting secretory glands.

2. The tendency of fluids to move in a spiral direction, like the electric fluid, exhibits itself in the spiral vessels which carry the sap in plants; in vines, and their tendrils; in the arrangement of leaves and their foot-stalks, in many plants; in the arrangement of the vessels of the umbilical chord; in the spiral turns of the sudoriferous ducts, lately discovered; in the peristaltic motions, as manifested by the arrangement of the valvulæ conniventes—some animals, as one species of shark, having a spiral lamen passing the whole length of the intestines; in the biliary ducts; and most strikingly in the fact that two currents have been discovered flowing in opposite directions, and contiguous to each other, each describing a helix,* within the same cylindrical vessel.

3. The tendency to a curvilinear motion is manifested in the spherical form of cellules and closed sacs; in fruits; in the rounded forms of the prominent parts of bodies, and of internal organs; in cylindrical tubes, chords and bones; in all the univalve and bivalve shells; in the growth of hair, horns, the bills of birds, and the scales of fishes.

4. The pressure is exemplified in the growth of all animals and vegetables. This fluid, constantly accumulating within, has a tendency to diffuse itself equally in all directions. This effort at diffusion occasions the expansion of all bodies and organs of bodies, from the centre to the circumference. One effect of this pressure is exhibited, in a striking manner, in the growth of the brain. Another in the formation of valves and membranes, when currents, originally united, are made to assume opposite directions, and the disappearance of membranes, when currents move in the same direction. It is to the operation of this cause that the vessels on the chorion of the fœtus gradually unite, until they form the placenta and umbilical cord; that the blood-vessels, coming from the gills of fishes, unite in a single tube before they pass to the surface. But the clearest manner in which it is shown, is in the closure of the foramen ovale in the heart, and the formation of the membrana tympani; and as this connection, together with the agency of this fluid in evolving the brain, can be pointed out with briefness and precision, I shall devote a short space to their illustration, as the chief object of this communication.

The foramen ovale in the heart of the fœtus is closed by a membrane, as soon as the blood is attracted to the lungs, in the first efforts of respiration. The pressure of this fluid in the parietes of the heart, in the same plane with the foramen ovale, continuing, while the counteracting pressure of that contained within the blood, passing from one auricle to the other, is taken away, the fluid would of course move forward in that plane, and by attracting the tissue of the heart with it, would form a membrane closing the foramen.

The membrane of the tympanum is placed at the plane of junction of the current of air passing in and out of the cavity of the tympanum, by the Eustachian tube, and that passing into the concha; the air would not, therefore, move backwards and forwards through this plane, and perpendicularly to it, so as to interfere with a current of fluid converging from the circumference to the centre, as it does through every other plane that may be imagined in these cavities. In like manner the membranes over the ſoramen ovale and rotundum oſ the ear, the valves oſ the heart, arteries and veins, as well as the ductus arteriosus and venosus, may be traced to their origin.

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* Roget's Bridgewater Treatise, Vol. 2d, page 170.

The polypus presents, in its tissue, the analogue oſ every superior animal in its embryotic state. It moreover corresponds to the condition oſ the tissue in which every important organ is ſormed. Iſ it is considered as a single animal, inhabiting the bed oſ coral which it ſorms, instead oſ a number, an opinion which is now gaining ground, the pieces oſ coral will be the cast or mould oſ the mass oſ animal matter contained within it; and since it is homogeneous in texture, with the principle oſ liſe diffused equally through all its parts, there will be every reason to believe that where it exhibits resemblances to any bodily organ, these resemblances are owing to the action oſ the same law oſ development. Now in that species oſ coral which is called brain coral, we have a complete representation oſ the convolutions oſ the cerebrum. In the branching coral, we have also the image oſ the arbor vitæ oſ the cerebellum. Again, in that variety which is called ruffle coral, we have an example oſ an arrest oſ development, constituting a primary stage oſ that which, in its more perſect state, is the brain coral. The growth oſ coral, in this way, is easily explained. Supposing the base oſ its ſormation to be a horizontal straight line, covered with polypous matter, ſrom the base to the circumſerence oſ the polypus, the fluid is moving and diverging in all directions, but is more especially attracted upwards. It would first dispose the organic molecules somewhat in the shape oſ a ſan; the upper edges oſ the ſan would then begin to undulate, and these undulations increasing ſrom the central plane, would soon be thrown in plaited ſolds like the mesentery. As the fluid passes off more readily ſrom the upper edges than the sides, the plaits would approach each other, until they unite and present an appearance precisely like that oſ the convolutions oſ the brain, and which would afford the greatest number oſ points possible on a convex surſace ſor this fluid to diverge without interſerence. Should the diverging ſorce be so great as to overcome the power oſ cohesion, the plaits would split and ſorm branches, corresponding to the cerebellum. These branches are flattened, and the lamina thin in the cerebellum, ſrom the joint action oſ the fluid in the cerebrum above and the body below. That the ſormation oſ the brain and intestinal tube takes place by the operation oſ the same ſorce, somewhat modified in each, reason and analogy afford little room to doubt.

By bearing in mind that the plaits or ſolds are not so much the effect oſ an actual bending oſ the tissue once ſormed, as oſ the successive accretion oſ molecules added in the lines oſ divergence oſ the fluids in the polypus and in the brain, we have only to conceive oſ a stratum oſ blood in constant apposition with the periphery oſ the brain, out oſ which the nervous molecules are elaborated and deposited, and the anatomy oſ the convolutions is at once perſectly understood.

But there is one powerſul objection to so simple a view oſ the ſormation oſ the cerebrum and cerebellum. All wise men have proceeded on the supposition that the brain was a very complex organ; that nature could not accomplish so much with it as she does, by a means so simple. Too many hard names have been given to the little irregularities and bulgings occasioned by the meeting of opposing currents of this fluid. Too many volumes have been published, too many vivisections have been made, too many pathological observations, thus to be lightly thrown away. The sublime science of Phrenology will be undone. Her six times six cerebral organs will melt away before the eye of imagination, as they have always done before the eye of the dissector. The corpus callosum will be callous to such reasoning. The lyra, in the hand of some modern Orpheus, will play a tune beneath the roof of the ventricles, that will wake the slumbers of the thalami; and the pedes hippocampi will dance to the music thereof. The cornu ammonis will *but* and *rebut* such innovations. The grit of the pineal gland, the very seat of the soul, will be roused. The iter ad infundibulum, and the iter a tertia at quartum ventriculum, will reverberate iter-umque, iter-umque, and the calamus scriptorius will be taken in hand to re-echo the burden of the encephalon, from the tears of the pituitary body to the gnashings and biting sarcasms of the corpus dentatum.

The only reply to this objection is, that after all the labor and research spent in investigating the brain, we know of nothing that opposes the supposition of the brain being a single organ. Every attempt to make a particular part of it subservient to a particular faculty, has failed. If evidence were wanted for this assertion, evidence enough would be found by reading that portion of the debate before the British Association for the promotion of science, relating to this subject; or Professor Dunglison's detailed view of the opinions and experiments on the functions of the nervous system, from which he draws the only legitimate conclusion that can be drawn, from the light in which they were contemplated, which is, that it is best to repeat the experiments over again. A sufficient reason this to regard the method of proceeding in experimenting on the brain, as wrong ab initio. Instead of endeavoring to find out for what purpose an organ is formed, and confining our attention to that object, *exclusively*, we should also endeavor to discover the law which regulates the formation of the several organs. There are two questions to be answered in this connection, which mutually explain and lend a clue to the investigation of each other. These questions are, first, the design, and second, the mode of evolution, of the organs. By looking after particular organs in the brain, and particular purposes to be answered in the formation of such parts, as the fornix, pineal gland, and corpus callosum, physiologists have been looking for needles in a haystack. In this way we may arrive at a satisfactory solution of many appearances which now perplex and puzzle us. By supposing the brain, as well as other organs, to be developed between the pressure of two mediums, one accumulating from within and tending outwards, the other pressing upon it from without, we have at once a satisfactory explanation, not only of the anatomy of the convolutions, but of all the appearances it presents. The globular appearances in the early stages of its development, the bulging out of the cerebellum and the convolutions afterwards, are the result of a pressure nearly equal and uniform from below upward and from within outward; while the corpus callosum, the septum lucidum, the fornix, the pineal gland and the mamillary eminences, are the result of currents established to make up the equilibrium. The medium pressing upon the brain and the body from without, is the ether which in its vibrations is supposed to cause light, heat, and electricity. That within is the same fluid more concentrated, and which seeks to diffuse itself. The whole body may be considered a sphere, having within it a focus from which the fluid radiates, and to which the fluid without tends; and each organ a smaller sphere, having a similar central point. The mutual action of these several centres modifies each other, and occasions the varieties in the forms of the different organs. They are like the different centres of gravity in a system of bodies, the common centre of which exists in neither. The common centre for the cerebrum, cerebellum and spinal marrow, is the pons varolii, as is sufficiently indicated by its structure, position, and the converging of the fibres of the crura, as well as by the bulgings of the medulla before it enters the mass.

This fluid forms bone, when its course is uninterrupted in one, two, or three directions; it forms cartilage, when its motions are broken in the slightest degree; tendon, when still more interrupted; muscle and membrane, when a greater variety of motions are impressed upon it; and nerve, when it is obliged to vibrate in small spaces. The particles of each tissue, when they are deposited, are so disposed as to give a disposition to the continuation of precisely the same motions that arranged them in that particular way. Nervous fibres indicate the course in which the fluid moves. Nervous expansions of soft or semifluid consistence, like the retina or auditory nerve, show that the fluid vibrates in small arcs.

It is impossible here to enlarge on these points. Each of them would afford matter for a volume. They are thrown out *en masse*, simply to elicit attention. In a future number of the Journal an exposition of the anatomy of the ear will be given, which, as it presents a number of mathematical relations in the shape and position of the semicircular canals and cochlea, will nearly demonstrate the existence of this fluid, if further demonstration is wanting, as the grand moving principle of life, manifested in the composition and decay of bodies, in health and disease.

NOTE.—I would take this occasion for correcting a misapprehension, that, it has been suggested to me in conversation, has arisen in the minds of some in relation to the views set forth in the article on animal magnetism, and in the propositions on physiology, recently published in this Journal. I am supposed to imagine the existence of *two* fluids, separate and distinct in their nature, as the active agent in the changes and forms wrought by the principle of life. This is altogether a mistake. I have never seen any necessity for the admission of more than one fluid, which is generally and universally diffused. This fluid I conceive to be the ether, the vibrations of which, in certain spaces and times, is commonly believed to occasion the sensation of light and heat, and its currents, electricity. Any concentration or motion of this fluid must be attended with the formation of a new medium, which, like the different strata and currents of the air, would give rise to virtually the same physical effects as two fluids encountering each other in their movements. And it was in treating of these concentrations and motions, excited in organized matter, that I may have spoken of two fluids, or of two mediums, in a manner intended to fix more definitely in the mind the several points aimed at in the discussion, but at the same time calculated to mislead into the opinion of my imagining two causes to account for phenomena which one will account for as well. B. H.

A CASE OF MALFORMATION OF THE SEPTUM NARIUM.

[Communicated for the Boston Medical and Surgical Journal.]

FROM youth up, persons with whom I conversed often justly complained of my indistinct enunciation, and remarked that it was oftentimes impossible for them to understand many words I uttered. Being reminded of this defect by teachers and friends almost from the moment I was able to articulate the first words in childhood, until I had attained to maturer years, I made constant efforts to overcome the difficulty, and particularly in all words, which I had occasion to use, having the nasal sound, yet without any success. I was, therefore, greatly to my annoyance, compelled to sit as a silent listener to the conversation of others. It was not until the summer of 1830, that I began to suspect the real cause of all my trouble. From my then entire ignorance of the true *nature* of the difficulty, I was apprehensive of serious consequences, and consulted the most eminent neighboring surgeon. Not comprehending its character, his prescriptions tended to increase, rather than lessen, my affliction; for the local use of iodine ointment and tincture had not a very soothing effect on the delicate and sensitive surface of the schneiderian membrane. Great determination of blood ensued, and consequent thickening of its tissue. After this, the same surgeon advised me to have an incision made through the ala nasi to the nasal process of the superior maxillary bone, and then the offending substance removed. To this I declined, as there was already too great a disfiguration of the nose, without the addition of a cicatrix.

I then applied to another surgeon, a professor in a medical institution, and was advised the same operation, to be performed in the same way. I lastly repaired to Philadelphia, and consulted Dr. George McClellan, of the Jefferson Medical College. This gentleman, for the first time, pronounced it a congenital malformation of the septum narium. Upon examination, it was ascertained to commence where the cartilaginous septum joins to the vomer; thence inclining to the right of the mesial line, it completely obstructed the right nasal passage, giving to the external appearance of the nose a very marked lateral curvature. Professor McClellan commenced the operation of extirpating the septum by passing a sharp-pointed bistoury through its inferior portion, with the edge quite to the floor of the nostril; then adroitly curving and carrying it posteriorly nearly to the vomer, it was turned upwards and then forwards to the place of beginning, entirely removing the septum, without in the least interfering with either alæ.

Since that time, thanks to the skilful hand of the operator, my nose has become straight, my enunciation good, and I am enabled to breathe without an half-opened mouth. AN M.D.

Nov., 1837.

BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, NOVEMBER 29, 1837.

LISTON'S SURGERY.*

IN sitting down to examine a new book, a person feels the same kind of curiosity that he does in looking, for the first time, at some ingenious piece of mechanism. The binding, the dimensions of the pages, the character of the type, the arrangement of the subjects, and, last, though not least, the claims of the author, are each the objects of interest in turn.

A few days ago our friend Ticknor, who really manifests a laudable ambition to stock his shelves with every work that the profession inquire for, sent us a generous volume from the press of Carey and Hart, of Philadelphia, entitled ELEMENTS OF SURGERY, by Robert Liston, which deserves something more than a simple paragraphic notice. The world has not yet been deluged with the writings of surgeons; there is abundant room for more. In fact, as the art is acknowledged to be progressive, it is as necessary to multiply them, as it is to record the advances made in domestic economy. Every age, every year—indeed every operation—adds to the preceding stock of this particular kind of knowledge; and to be qualified for discharging the duties devolving upon one who professes to be always prepared to alleviate distress—nay, to save life, endangered as it continually is, by unnumbered incidents, and an almost countless catalogue of diseases which fasten upon the complicated framework of man—he should avail himself of the proffered experience of all who are able and willing to give him instruction.

It is presumed that no surgeon deliberately goes through the thankless labor of constructing a guide book in operative surgery, in these days, who does not feel conscious of his ability to instruct the reader. Occasionally, in this as in other professional departments, an author may mistake his own power, and suffer the mortification of being forgotten before he ceases to exist; but it rarely happens that sterling merit goes unrequited. Envy, jealousy, selfishness, and the despotism of a name, may limit for a while the influence of the most meritorious and deserving. Still, in the end, real talent will triumph, and true greatness have its reward.

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* Elements of Surgery, by Robert Liston, Fellow of the Royal College of Surgeons in London and Edinburgh; Senior Surgeon of the Royal Dispensary of the city and county of Edinburgh; Lecturer in Surgery, &c. Philadelphia: E. L. Carey & A. Hart, 1837. 8vo. p. 544.

A sketch of Mr. Liston's life would be but a republication of the history of an excellent man, a bold and successful operator, a popular teacher, and one who is already familiar to the reader. The announcement, therefore, of a scientific treatise from his pen, is simply notifying his admirers, a numerous body in this country, that they can procure what they have long desired—a system of surgery from high authority.

He professes to present the elements only ; yet those who have given this edition a thorough investigation, pronounce it a full and complete work. The author has a happy mode of arriving at the point, without obliging the student to follow him through a whole chapter of preliminary observations. This circumstance is, in itself, a recommendation. As a whole, it is characterised by simplicity and conciseness ; and yet every idea, every process, and every leading fact, is introduced in an orderly manner, as from one understanding their value and bearings.

Mr. Liston's Elements of Surgery, in a word, is a valuable acquisition to the library. Although he has in preparation another upon the same subject, illustrated with wood engravings, it is presumed it will not vary essentially from the present American edition.

We entertain no fears, nor do we design to court favor, in speaking of authors. If we praise them, it is because we think they have intrinsic claims : on the contrary, adventurers in medical literature, who push their frail vessels, without compass or chart, beyond the depths where they would have sailed in safety, excite but a momentary compassion when lost in the great ocean which they had neither skill nor qualifications for navigating.

Diseases of the Lungs.—Since the Boston infirmary for diseases of the lungs was opened, it is surprising to observe the number seeking advice at that institution. A large proportion of the applicants are young persons. We were struck with the evident tendency to inflammation of the lungs in this region of country, years ago, but had no just idea of the amount of hereditary disease of those life-preserving organs, till we had listened over and over again to the melancholy details of patients—how their grandfathers, grandmothers, fathers, mothers, brothers and sisters, had been swept away by that scourge of New England, pulmonary consumption. The late lamented Dr. Spurzheim always spoke with peculiar boldness on the subject of the intermarriage of persons actually diseased, as well as those descended from parents in whom a family tendency existed to phthisis. Now the fact is established, beyond all contradiction, that children born of parents whose lungs are tuberculous or ulcerated, will, in a majority of cases, have the same fearful malady. Ought not the suggestion, then, of that accurate observer of man in all the phases of life, from infancy to age, in respect to matrimonial alliances, at least, to have some influence in all intelligent communities ?

Dietetic Radicalism.—The author of the " *The House I Live in,*" a well devised little treatise on elementary anatomy, calculated to create a taste amongst non-professional youths for understanding the great principles of animal organization, has produced a duodecimo, of late, which, though quite foreign in its design from anything ordinarily treated of in our Journal—being called the YOUNG WIFE—is, nevertheless, within our province. It is so, because the author, almost without being perceived, through the guise of a moralist—a character for which we entertain the highest respect, and we certainly respect him as plain Dr. Alcott —holds up his prejudices to the contemplation of the reader, as the deductions of sound philosophy. *Tea and coffee*—the old hobby of the defunct anti-eaters, anti-drinkers, anti-sleepers, yea anti-thinkers—figures in the "Young Wife" as a fiend that sucks out the life-blood like a vampire. Now this is a doctrine that cannot be sustained by that best of all evidence, the experience of ages. It was not our intention, when these remarks were commenced, to be argumentative, nor do we purpose to cite facts in order to illustrate, what, after all, would be but an individual opinion, viz., that the world, with the men and women upon it, is doing very well—leaving it optional with them all, however, to starve on bread and water, or breakfast on coffee, dine on beef, and chat, at evening, over a cup of tea, just as suits their own convenience, sincerely believing they will live just as long and as well in the temperate use of the latter articles as they will in the entire abstinence from them.

Vermont Academy of Medicine.—The annual autumnal term of the Vermont Academy of Medicine closed on Wednesday, Nov. 8th, 1837. The degree of M.D. was conferred on twenty-one gentlemen.

The honorary degree of M.D. was conferred on Eli Bois, M.D., Jefferson, N. Y., and John D'Wolf, Jr., M.D., Bristol, R. I.

The annual spring term commences on Thursday, the 8th of March, 1838, and continues thirteen weeks.

Medical Miscellany.—Dr. Flint's introductory lecture at the Medical Institute of Louisville, is spoken of as being an uncommonly elegant production. The school there is represented to be flourishing.—Professor Lock has returned from Europe, to Cincinnati, bringing valuable apparatus for the Medical College of Ohio.—Mr. Fletcher, the phrenologist, is carrying on a profitable business in Boston, examining numbsculls —price fifty cents.—The deaths in September, at Natchez, by yellow fever, were 76 ; in October, 168.—The bones of an extraordinary animal were discovered in Jackson Co., Ohio, lately, one of the tusks weighing 180 lbs, and one of the teeth 4 lbs., 4 oz.—The yellow fever has been making melancholy havoc at Opelousas, La.—A maker of patent pills, in New York, remarked to a box maker, the other day, that he had sixteen bushels of pills on hand, for which boxes were wanted.—A child at Camden, N. J., 18 months old, was killed, recently, by a needle, which was unaccountably forced through the walls of the thorax. The poor little sufferer died as Dr. Harris was in the act of making an incision for extracting the needle—not enough being without the skin to seize it by. An examination exhibited the needle in the substance of the lungs—causing an effusion of blood and suffocation.—Cases of smallpox have occurred at Woodstock, and other towns in Vermont.

DIED,—In North Yarmouth, Me., Dr. Gad Hitchcock, aged about 50.—In New York, Dr. William Grigg, aged 33, formerly of this city.—In this city, on Saturday last, the Hon. John Cotton, in his 67th year, formerly proprietor and publisher of the Boston Medical and Surgical Journal.

Whole number of deaths in Boston, for the week ending Nov. 25, 34. Males, 12—Females, 22.

Consumption, 4—typhus fever, 4—scarlatina, 6—teething, 1—old age, 1—ulcerated sore throat, 1 —croup, 1—ulcer of the antrum, 1—child-bed, 1—measles, 3—lung fever, 1—lumbar abscess, 1—paralytic, 1—fungus hæmatodes, 1—dropsy in the head, 1—decline, 1—stillborn, 2.

PROLAPSUS UTERI CURED BY EXTERNAL APPLICATION.

DR. A. G. HULL'S UTERO-ABDOMINAL SUPPORTER is offered to those afflicted with *Prolapsus Uteri*, and other diseases depending upon relaxation of the abdominal muscles, as an instrument in every way calculated for relief and permanent restoration to health. When this instrument is carefully and properly fitted to the form of the patient, it invariably affords the most immediate immunity, from the distressing "dragging and bearing down" sensations which accompany nearly all visceral displacements of the abdomen, and its skilful application is always followed by an early confession of radical relief from the patient herself. The Supporter is of simple construction, and can be applied by the patient without further aid. Within the last two years 700 of the Utero-Abdominal Supporters have been applied with the most happy results.

The very great success which this instrument has met, warrants the assertion, that its examination by the Physician will induce him to discard the disgusting pessary hitherto in use. It is gratifying to state, that it has met the decided approbation of every member of the Medical Faculty who has applied it, as well as every patient who has worn it.

The Subscribers having been appointed agents for the sale of the above instruments, all orders addressed to them will be promptly attended to. Price, $10.

Lowe & Reed, Boston; David Kimball, Portsmouth, N. H., Joshua Durgin, Portland, Me., Joseph Balch, Jr. Providence, R. I.; Elisha Edwards, Springfield, Mass.; N. S. Worden, Bridgeport, Conn. May 10—6m

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MEDICAL INSTRUCTION.

The subscribers have associated for the purpose of giving medical instruction. A convenient room has been provided for this purpose, which will be open to the students at all hours. They will have access to an extensive medical library, and every other necessary facility for the acquirement of a thorough medical education.

Opportunities will be offered for the observation of diseases and their treatment in *two* Dispensary districts, embracing Wards 1, 2 and 3, and *in cases which will be treated at the room daily*.

Instruction will be given by clinical and other lectures, and by examinations at least twice a week.

Sufficient attention will be paid to Practical Anatomy.

For further information, application may be made at the room, over 103 Hanover street, or to the subscribers.

EPHRAIM BUCK, M.D.
ASA B. SNOW, M.D.
E. WALTER LEACH, M.D.
HENRY G. CLARK, M.D.
JOSEPH MORIARTY, M.D.

Boston, August 9, 1837.

MEDICAL INSTRUCTION.

The subscribers are associated for the purpose of giving a complete course of medical instruction, and will receive pupils on the following terms:

The pupils will be admitted to the practice of the Massachusetts General Hospital, and will receive clinical lectures on the cases they witness there. Instruction, by lectures or examinations, will be given in the intervals of the public lectures, every week day.

On Midwifery, and the Diseases of Women and Children, and on Chemistry,	by	Dr. Channing.
On Physiology, Pathology, Therapeutics, and Materia Medica, - -	"	Dr. Ware.
On the Principles and Practice of Surgery, - - - -	"	Dr. Otis.
On Anatomy, - - - - - - - -	"	Dr. Lewis.

The students are provided with a room in Dr. Lewis's house, where they have access to a large library. Lights and fuel without any charge. The opportunities for acquiring a knowledge of Anatomy are not inferior to any in the country.

The fees are $100—to be paid in advance. No credit given, except on sufficient security of some person in Boston, nor for a longer period than six months.

Applications are to be made to Dr. Walter Channing, Tremont Street, opposite the Tremont House, Boston.

WALTER CHANNING,
JOHN WARE,
GEORGE W. OTIS, JR.
WINSLOW LEWIS, JR.

Oct. 18—tf

VACCINE VIRUS.

Physicians in any section of the United States can procure ten quills charged with Pure Vaccine Virus by return mail, on addressing the editor of the Boston Medical and Surgical Journal, enclosing one dollar, *post paid*, without which, no letter will be taken from the post office. Oct. 25.

TO MEDICAL STUDENTS.

The undersigned are associated for the purpose of instructing in all the branches of Medicine and Surgery. A suitable room will be provided, and pupils will have the use of an extensive medical library, opportunities for seeing the practice of one of the districts of the Dispensary and of the Eye and Ear Infirmary, and of attending a course of lectures on the diseases of the eye.

A regular course of recitations and examinations will include all the required professional works.

Anatomical instruction and private dissection will form a prominent part in the study of the pupils.

For further information, apply to either of the subscribers.

JOHN JEFFRIES, M.D.
R. W. HOOPER, M.D.
JOHN H. DIX, M.D.

Franklin Street, Nov. 9, 1836. July 19—6m

THE BOSTON MEDICAL AND SURGICAL JOURNAL is published every Wednesday, by D. CLAPP, JR. at 184 Washington Street, corner of Franklin Street, to whom all communications must be addressed, *post-paid*. It is also published in Monthly Parts, each Part containing the weekly numbers of the preceding month, stitched in a cover. J. V. C. SMITH, M.D. Editor.—Price $3,00 a year in advance. $3.50 after three months, and $4,00 if not paid within the year.—Agents allowed every seventh copy *gratis*.—Orders from a distance must be accompanied by payment in advance, or satisfactory reference.—Postage the same as for a Newspaper.